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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/790,627	03/01/2004	Brad N. Mathiowetz	P32.12-0022	1342

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EXAMINER

CHUO, TONY SHENG HSIANG

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 07/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	10/790,627		MATHIOWETZ ET AL.	
	Examiner		Art Unit	
	Tony Chuo		1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 3/1/04 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Claims 1-16 are currently pending in this application. The rejection of claim 11 under 35 USC 112 is withdrawn. Claims 1-16 do not overcome the previously stated 102 and 103 rejections. Therefore, claims 1-16 stand rejected under the previously stated 102 and 103 rejections.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 4, 12, and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Oweis et al (US 5651255). The Oweis reference teaches a cover and process of covering an electrical energy storage cell comprising: a first layer "3" of thermally conductive material made of aluminum that is shaped to conform to an outer surface of the electrical energy storage cell; and a second layer "4" of thermally insulating material that is shaped to conform to an outer surface of the first layer (See Figure 1 and column 2, lines 28-33). In addition, it also teaches the first layer of material that spreads flow of the heat over a portion of the outer surface of the first layer that is larger than the hot spot and a second layer of material that retards the flow of heat to an outer surface of the second layer (See column 2, lines 28-33).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 2, 7, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al (US 6294287) in view of Moores et al (US 6455186). The Lee reference teaches a cover and a process of covering an electrical energy storage cell comprising: a layer "775" of thermally insulating material that is shaped to conform to an outer surface of the cell (See Figure 1 and column 6, lines 26-65). However, the reference does not expressly teach a first layer of thermally conductive material that is shaped to conform to the outer surface of the electrical energy storage cell. The Moores reference does teach a layer of thermally conductive material that is shaped to conform to the outer surface of the electrical energy storage cell (See Figure 4a and column 5, lines 44-47). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Lee battery cover to include a layer of thermally conductive material in between the cell and the thermally insulating material in order to more effectively remove heat from the cell and evenly dissipate the heat throughout the cell.

6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Oweis et al (US 5651255) in view of Rouillard et al (US 6087036). The Oweis reference teaches a cover comprising: a first layer "3" of thermally conductive material made of aluminum

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that is shaped to conform to an outer surface of the electrical energy storage cell; and a second layer "4" of thermally insulating material that is shaped to conform to an outer surface of the first layer (See Figure 1 and column 2, lines 28-33). However, it does not expressly teach the temperature of the outer surface of the second layer that has a measured maximum temperature of 130 degrees centigrade or less during short circuit condition. The Rouillard reference does teach the temperature of the outer surface of the battery that has a measured maximum temperature of 130 degrees centigrade or less during short circuit condition (See column 8, line 59 to column 9, line 14).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Oweis battery cover to maintain the temperature of the outer surface of the battery that has a measured maximum temperature of 130 degrees centigrade or less during short circuit condition in order to operate the battery below the maximum breakdown temperature of the cells.

7. Claims 4, 5, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al (US 6294287) in view of Moores et al (US 6455186) as applied to claims 1, 2, 7, and 12 and further in view of Dansui et al (US 2003/0013009). However, the references do not expressly teach thermally conductive materials that comprise aluminum or copper. The Dansui reference does teach thermally conductive materials such as aluminum or copper (See paragraph [0026]). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Lee battery cover to include a layer of thermally conductive material that is either aluminum or copper because these materials are well known in the art to exhibit excellent thermal conductivity properties.

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8. Claims 6, 7, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al (US 6294287) in view of Moores et al (US 6455186) as applied to claims 1, 2, 7, and 12 for reasons stated above and further in view of Oosaki et al (US 5689173). However, the references do not expressly teach thermally insulating materials that comprise heat-shrink tubing or elastic material. The Oosaki reference does teach thermally insulating materials such as heat shrink tubing which is an elastic material (See column 4, lines 20-22). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Lee battery cover to include heat shrink tubing because heat shrink tubing is inexpensive and easy to manufacture.

9. Claims 8 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al (US 6294287) in view of Moores et al (US 6455186) as applied to claims 1, 2, 7, and 12 and further in view of Bechtold et al (US 6007944). However, the references do not expressly teach a cover that comprises two half-shells that each cover one side of a round surface of the energy storage cell. The Bechtold reference does teach two half shells that each cover one side of energy storage cell (See column 1, lines 37-40). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Lee battery cover to include two half shells that each cover one side of a round surface of the energy storage cell in order to decrease the risk of a short circuit.

10. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miller et al (US 5204194) in view of Oweis et al (US 5651255). The Miller reference teaches a battery comprising: a plurality of electrical energy storage cells "24" & "26";

electrical connection leads "32"; a protective device including a fusible link "64" and electrical interconnections "50" that interconnect the plurality of electrical energy storage cells in series circuit with the protective device and the electrical connection leads; and a plastic resin shell shaped to receive the plurality of covered cells and the protective device (See Figure 1 and 3 and column 3, lines 39-41). However, the reference does not expressly teach covering each cell with a first layer of thermally conductive material and a second layer of thermally insulating material. The Oweis reference does teach a cell cover that comprises a first layer of thermally conductive material and a second layer of thermally insulating material. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Miller battery to include covers that comprise a first layer of thermally conductive material and a second layer of thermally insulating material in order to provide a high efficiency thermal insulation structure for dissipating heat generated by the cell.

11. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miller et al (US 5204194) in view of Oweis et al (US 5651255) as applied to claims 9 and 10 for reasons stated above. The Miller reference also teaches upper and lower insulating members "54" and "56". However, the reference does not expressly teach a plastic resin shell that includes plastic resin separation bars positioned between the cells and the electrical interconnections to reduce shorting. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Miller battery to include separation bars in the plastic resin shell in order to simplify the overall construction of the battery.

Response to Arguments

12. Applicant's arguments filed 6/9/06 have been fully considered but they are not persuasive. In response to applicant's arguments, the recitation "which experiences a hot spot during a short circuit" has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). In addition, it is well known in the art that during a short circuit, an electrical energy storage cell will experience a hot spot at the location of the short circuit.

In response to applicant's argument that Oweis et al does not disclose a first layer that spreads heat flow from a hot spot and a second layer that has an outer surface temperature that is lower than a temperature that can cause combustion in a combustible atmosphere, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In response to applicant's arguments that "*the function Oweis' metal foil is that of a reflector that concentrates heat. There is no teaching in Oweis that the metal foil spreads heat from a hot spot*", the examiner contends that although the primary use of Oweis' metal foil is for concentrating heat, applicant is not contemplating that the foil of

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Oweis which is made of a metal material and thus exhibit good heat conducting properties is able to dissipate or transfer heat by either heat conduction, heat convection or heat radiation. That is to say, since the metal foil of Oweis is heated due to its heat concentration function, it will be transferring or spreading heat from its surface to another element having a lower temperature. Therefore, the temperature gradient cause by the very same heat concentration function of Oweis' metal foil is the stimulating factor for allowing the metal foil to transfer or spread heat therefrom by conduction, convection, or radiation. The same goes for Lee et al and Moores et al. As long as there exists a temperature gradient between two elements, a first element having a higher temperature will be able to transfer or spread heat by conduction, convection, or radiation to a second element having a lower temperature.

In response to applicant's argument that Oweis et al is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Oweis et al is in the same field of the applicant's endeavor because Oweis et al discloses a thermal insulation structure for a battery that is in the same class as the applicant's battery cover. In addition, the Oweis thermal insulation structure is also capable of solving the same problem as the applicant's battery cover (i.e. dissipating the heat flow from a hot spot on the battery during a short circuit). In further response to applicant's argument that "Oweis et al is non-analogous art", arguments that alleged anticipatory prior art is non-analogous art are not germane to a rejection under section

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102. (*Twin Disc, Inc. v. United States*, 231 USPQ 417, 424 (Cl. Ct. 1986) (quoting *In Re Self*, 671 F.2d 1344, 213 USPQ 1,7 (CCPA 1982))

In response to applicant's argument that there is no suggestion to combine the Lee et al and Moores et al references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation to combine the references is found in the knowledge generally available to one of ordinary skill in the art. It is generally known that a thermally conductive material can be used to evenly dissipate heat.

Regarding claim 8 and 16, Bechtold et al discloses half shells that are non-electrically conducting that are made of polyvinylidene difluoride. In addition to being electrically insulating, this material is also thermally conductive.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tony Chuo whose telephone number is (571) 272-0717. The examiner can normally be reached on M-F, 8:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TC


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PRIMARY EXAMINER